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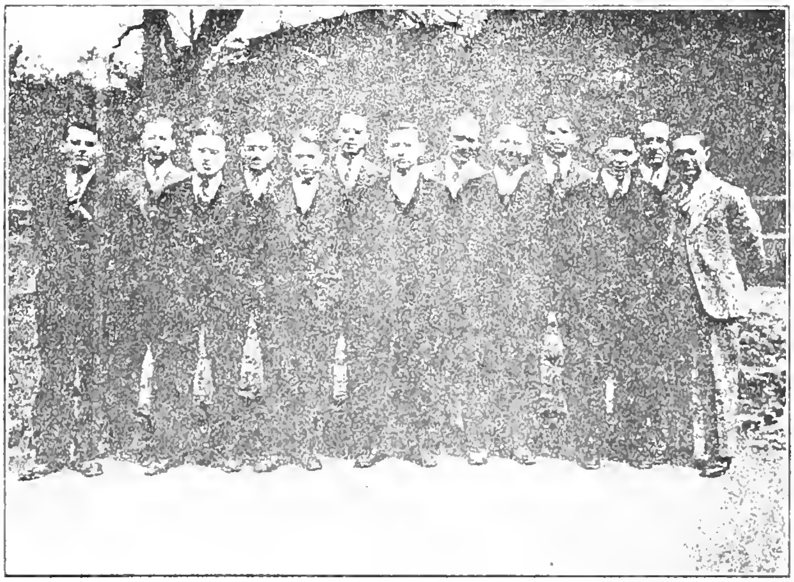

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The Staff takes this opportunity to express its gratitude for the great help rendered by Miss Alyce McCabe, Secretary to the Registrar, Dr. Ralph H. Green, O. D., Class of '29 and Mr. Arnold Wordell, '31.

We also wish to thank our contributors and advertisers.

A PROVING PLANT FOR EQUIPMENT

by Theodore F. Klein.

In the opinion of the writer there is a lack of substantial ata to prove the value of certain special apparatus that ave from time to time been manufactured.

The busy Optometrist has no time to investigate the real alue of instruments and apparatus that he does not use in is routine practice. In order that an unbiased opinion be iven in reference to the value of these appliances, the writer elieves there should be established a research clinic or epartment in some recognized institution having absolutely o connection with any manufacturing plant. The apparatus an then be critically examined and used on a sufficient umber of cases to prove or disprove their value.

All practitioners should support such an institution so ey may derive benefit from the information that would ccrue from such investigation.

There is a tendency on the part of a large number of ractitioners to accept almost any statement that is made y individuals who have a persuasive flow of eloquence. often wonder if they realize there is such a thing as high pressure salesmanship. Not that it is my intention to discredit any of the manufacturers, but what I do think is that, some, at least, should exercise more care in selecting their demonstrators so that the listeners would not have a false impression of what can be done with apparatus.

There is much good apparatus on the market and much credit is to be given to research department of various manufacturers for their earnest effort to produce instruments of greater perfection. They surely have the financial resources and equipment necessary to perfect, optically at least, instruments designed to assist Optometrists.

However, I think there would be no doubt as to the value of instruments that would be passed upon by the research department of an independent laboratory or clinic. Before the value of any instrument could be passed upon several thousand experiments should be made and this would not be impossible provided proper support would be given. The co-operation of the graduates of this school and all interested Optometrists is asked in order that this idea of research may be actually recognized.

IMPORTANT ELEMENTS IN GOOD REFRACTION

By Dr. Samuel H. Robinson, Prescott, Arizona.

Successful optometric work, like medicine and dentistry, takes into consideration not alone basic mechanical principles, but more elusive factors which often determine the success or failure of the service.

The preparatory work received in the optometrical school is the general foundation that outlines the governing principles of refraction. It can not deal comprehensively with the more subtle phases that must be met in actual practice. Some general and outstanding facts concerning the latter will be touched upon here.

In the matter of basic principles, the student may understand the function of accommodation, its purely optical phenomenon, how it serves near and intermediate vision, and even its influence and effect relative to nervous impulses, reflex actions, consumption of energy, and its general economy. A correct interpretation of its status however, is often dependent upon related circumstances which are made evident through daily practice.

There are instances when the classical tests hide the true condition. An accommodation may need help when the near point test indicates a rugged active accommodation. In that case we are guided somewhat by dynamic retinoscopic findings, by asthenopic indications, by periodic and intermittent fading or blurring of letters, and even by facial expression which suggests the labor incident to accommodation. Very often this accommodative disturbance is not an inherent fault with the accommodation, but a load imposed on it by self-corrected anatomical defect, i. e., distance defect.

This distance defect which imposes itself upon the accommodation is often most difficult to recognize, and buries itself, so to speak, within the accommodative function. The functional resources will naturally stagger somewhat more under the combined load of normal accommodation plus anatomical defect at near, than under the distance ametropia [illegible] this type of accommodative effort.

The distance defect in such cases is seemingly beyond repair. The co-operation of the patient, always an important factor, is hard to attain. The self-corrected vision eliminates vision as one element of complaint. An active accommodation, despite the consumption of energy, often postpones asthenopic symptoms until the following day, when little or no connection is recognized by the patient between his eyes and his work. Even a part of the correction really necessary, is not tolerated by the patient because of the temporary blur. Altogether it is a trying situation for the practitioner, and it requires a stout heart and confidence born of experience, to attempt exploring such cases, always with the possibility ahead that the condition may not be functional or refractive but toxic or constitutional.

A case of this kind reached the writer some months ago. The patient, a woman of about 35 was suffering from excruciating headaches. They were so severe at times that she went to bed for several days. The most careful refracting uncovered no ametropia. Inquiry was made if she had sought relief through other channels. She advised that other sources of relief had been tried but without avail. She was then advised that refractive defect was not apparent under superficial examination, but hidden defect might be revealed under probing if she would cooperate in the work. With repression or suppression treatment lenses there was established in the course of several weeks about 1.50 diopters of hypermetropia, which gave her fair vision and reduced the headache. With 2 diopters she was free from headaches although her vision was a poor 20-30. I have not seen her for some months but believe that at this time her vision is perhaps normal or nearly so.

I refer to the treatment lens as an important element in good refraction. Other practitioners may have developed other agencies that assist in achieving comfort. The student should bear in mind the thought that his success will depend largely upon his ability to reinforce his basic training

The Absorption and Effect of Invisible Radiant Energy of the Eye

By Charles Sheard, Ph. D.

Director of the Division of Physics and Biophysical Research, Mayo Foundation for Medical Education and Research, Rochester, Minnesota.

Absorption of Radiant Energy by the Ocular Media.— Chemical and physical changes occur only by reason of the absorption of incident energy. It is important, therefore, to know what portions of radiant energy are absorbed by the various media of the eye.

In 1908 Parsons and Baly carried out investigations on the absorption spectra of the cornea, lens and vitreous humor of rabbit's eyes. These researches were antedated in some particulars by those of Birch-Hirschfeld, Hallauer, and Schanz and Stockhausen. In a general way Parsons and others have concluded that: (1) the cornea transmits wave lengths to about 300 millimicrons, (2) the crystalline lens transmits to 350 millimicrons, while (3) the vitreous transmits to about 230 millimicrons with a definite absorption band extending from 250 to 280 millimicrons. With reference to the vitreous, it is to be remarked that its principal ingredient is water, and therefore its transmission would be expected to approximate that of water. Hallauer in 1909 spectrophotographically measured the absorptive power of over 100 human lenses. For young lenses most of the rays were absorbed up to about 400 millimicrons (extreme visible violet) but a certain number of rays between 330 and 315 millimicrons were able to pass through. With advancing age, however, transmission usually begins above 400 to 420 millimicrons. Helmholtz records the visual observation of the entire ultraviolet spectrum of sunlight, but we may well doubt the accuracy of this observation. Some fairly recent experimental work carried out by Graham on the transmission of crystalline lenses, and independently by Glancy (who made use of limits of visual observation in the ultraviolet), give the limit of transmission and visibility as about 320 to 310 millimicrons. Mascart, in 1869, with high-powered ultraviolet sources, considered that radiations as short as 313 millimicrons were visible.

All of these investigations show that the crystalline lens absorbs in large part the ultraviolet rays transmitted by the cornea and which lie between 300 and 380 millimicrons roughly. The crystalline lens fluoresces when these rays strike it. Schanz and Stockhausen attributed this fluorescence to the region 350-400 millimicrons. But in this they are doubtless in error, for a fluorescent body always strongly absorbs those rays which induce the fluorescence. Hence this role must be allotted to rays transmitted by the cornea and lying between 300 and 350 millimicrons. The fluorescence caused by the ultraviolet rays absorbed by the crystalline lens is a source of disturbance in vision and may be eliminated by the use of suitable glass filters such as Crookes A.

In regard to infra-red rays, Aschkinass, in 1895, published results on the absorption of infra-red radiation by the eye and concluded that in transmission of infra-red radiation the eye is almost identical with water. The percentage of water in the corneal composition is 90; there is 92 per cent water in the lens cortex and 84 per cent in the lens center. The total eye has been found by Luckiesh to be equivalent to 2.28 cm. of water. The determinations of the transmission and absorption of the incident infra-red by ocular media as made by Hartridge and Hill in 1917 show that the visible and infra-red radiations from 500 to 1,000 millimicrons (just above the visible red) are absorbed by the iris to about 95 per cent of the incident energy. About four times the amount of energy is absorbed for each unit area dent infra-red radiation with wavelengths between 1,200 and 2,400 millimicrons. By reason of the moisture in the atmosphere, however, (since the infra-red transmission of water is the same as that of the eye) much of the longer infra-red radiation from the sun is absorbed before reaching the eye. Hartridge and Hill attribute cataract to the absorption by the iris of radiation from 700 to 1,200 millimicrons.

Cataracts.—The extent of our knowledge of the influence of radiant energy of specific kinds and amounts on the human eye and hence, indirectly, on the comfort and efficiency of human vision is as yet very limited. We have for example, two rather divergent and apparently conflicting ideas as to the influence of radiant energy in the production of cataract. Both of these views may be found to be compatible, however, for either the infra-red or the ultraviolet may superinduce cataract under certain physiologic conditions.

Some years ago, Burge carried out a series of experiments on cataracts produced in the eyes of fish living in water containing small percentages of calcium chloride or sodium silicate. It is well known that cataracts are extremely common in the natives of India and, in general, in people living in the tropics. Chemical analyses show the presence of large quantities of silicates in the cataractous lenses of the people of India, but no appreciable silicates are found in those from the United States. Silicates may be accounted for in part by the fact that certain sects or classes in India eat siliceous earths as part of their diet while the prevalence of cataract may be accounted for by the large amount of ultraviolet radiation present in tropical sunshine and the silicates present in the eye media. Burge has, therefore, endeavored to correlate the interaction of ultraviolet light, the proteins of the lens and chemical salts in accounting for cataract. His experiments show quite conclusively that there is added liability to cataractous conditions when certain salts are in excess in the nutritive sources of the lens.

The short wavelengths of the spectrum produce a molecular rearrangement in the protoplasm of the cells of the crystalline lens, so that inorganic salts, such as are found to be greatly increased in cataractous lenses in man, can combine with the protoplasm to precipitate it, and hence produce an opacity.

An opacity of the lens, or cataract, can be produced in fish living in solutions of those salts found to be greatly increased in cataractous lenses in man by exposing the eye of the fish to radiation from a quartz-mercury vapor burner. This cannot be done by exposing the eyes of fish living in tap water, which contains only very small quantities of these salts.

In looking for the cause of cataract it would seem that at least two factors should be considered: The one, a modification of the protein of the lens by ultraviolet radiation, and the other, the presence of certain inorganic salts by which the modified protein can be precipitated. According to this hypothesis, the prevalence of cataract among people living in the tropics could be accounted for by the increase in the radiant energy factor modifying the lens protein so that an excess of salts, such as silicates in case of people in India, would combine with the protein to precipitate it and produce opacity of the lens, or cataract. The prev[illegible] of cataract among glass-blowers is also accounted for [illegible] excess of the radiant energy factor, the assumption be[illegible]

disturbed condition of nutrition, expressing itself as ncrease in sugar (as the result of diabetes), calcium salts in some other substance, which can combine with the s protein made sensitive by the action of the short wave- gths.

The chief conclusions of Verhoeff and Bell relative to aract formation and other effects of irradiation on the are:

1. Abiotic (lethal) action for living tissues is confined wavelengths shorter than 305 millimicrons. The lens pro- ts the retina of the normal eye completely even from all percentage of abiotic rays which can penetrate the nea and vitreous humor. To injure the cornea, iris and s by the thermic effects of radiation requires extreme ncentration of energy. No concentration of radiation on retina from any artificial illuminant is sufficient to pro- e injury thereto.

2. Snow-blindness may occur after long exposures due ultraviolet light. Glass-blower's cataract is not due to raviolet rays but probably to the overheating of the eye a whole with consequent disturbance in the nutrition of lens.

3. Commercial illuminants are entirely free of danger der the ordinary conditions of their use. The glass globes e sufficient to prevent any deleterious effects due to ultra- olet.

4. Suitable glasses protect because they reduce the total nount of light to a point where it ceases to be psychologic- y disagreeable or to be inconveniently dazzling.

There are also the researches of Hartridge and Hill, of gland, in which the seat of the irritation leading to cata- ctous conditions may be attributed in many cases to the fra-red or the longer wavelengths of radiant energy. Such diations are freely transmitted by the cornea and are sorbed in large part by the iris which lies close to the ns. They may thus cause nutritional changes in the lens virtue of the abnormal stimulus to the processes control- ng the secretion of the humor. Such a view seems entirely asonable and highly probable. It may be accepted, there- re, as definitely proved, that radiant energy, either by rtue of its kind or its quantity, may aid in or be primary use of cataractous formations when certain physiologic nditions are present.

Hartridge and Hill believe that heat radiation is prob- bly absorbed slightly by the pigment in the substance of e iris, by far the greater amount of energy passing through nd being absorbed finally by the pigment on its posterior rface. In the case of blue-eyed persons the pigment in the troma of the iris is absent and the posterior pigmentary ayer is alone effective in absorbing radiant energy. This eans that the absorbent layer comes in intimate contact ot only with the posterior chamber of the eye but also ith the processes of the ciliary body themselves. A rise n the temperature of the pigmentary layer due to the ab- orption of heat must necessarily cause at the same time a ise of temperature by conduction to surrounding struct- res; in this the glandular elements of the ciliary body take art, and there is excessive secretion of aqueous humor hich nourishes the lens.

There are several remarkable features in the occurrence of glass-blower's cataract. The very long period taken for the condition to develop does not at all suggest any patho- logic change of an inflammatory character, neither has any obvious change in any other structure of the eye apart from the lens been described. Thus the pupil is normal in size and reaction to light, which would not be the case if it had been the seat of any chronic inflammatory change. It would seem more likely, therefore, that the change in nutrition of the lens is one brought about by some physiologic alteration in the secretory mechanism of the aqueous rather than by a pathologic change. One needs only to postulate a secretion of aqueous when heat falls on the iris to obtain what ap- pears to be a plausible hypothesis of the formation of the cataract. Normally, aqueous is secreted in small amounts all the time; when heat falls on the iris a larger secretion oc- curs. This stimulus, occurring regularly over long periods of time, ultimately causes the secretory mechanism to be more and more dependent on the external stimulus. The secretion becomes periodic in character so that the lens, instead of receiving nourishment continuously, gets it only at intervals, with the result that the least well-nourished part of the eye suffers and cataract deleops.

Protection Against Invisible Radiant Energy.—While recognizing that agreement has not yet been reached as to the exact factors which enter into the production of glass- blower's cataract and the like, the following protective measures may be suggested: (1) The smallest possible ex- posed source of radiant energy; (2) goggles protecting si- multaneously against infra-red and ultraviolet rays; (3) frequent interruption of work, in the sense that the work- man should be placed on other work in the factory and at the same pay; (4) shorter or alternate working shifts; and (5) the collection of data on the incidence of lenticular opa cities in those engaged in occupations where furnaces are operated at high temperatures and arcs are used under considerable input of energy.

From the prophylactic standpoint, I believe that all who are conversant with the facts are in agreement that there should be adequate protection against ultraviolet light, a reduction in the visual energy and the elimination of much if not all of the infra-red radiation. For this protection, in varying degree dependent on the character of the work, the input of energy of the furnace or arc and the percentage distribution of the radiant energy into ultraviolet, visible and infra-red portions, there are a variety of high-grade protective glasses set in goggles or in hoods to be slipped over the head. We need not enter into details on this matter for bulletins have been published by the Bureau of Stand- ards (Numbers 93 and 119) and these give full data on a great number of protective glasses and spectral filters.

In conclusion, it is obvious that the preservation of the eyesight of the workman is of the highest importance to both employer and employee. To say the least, certain trades and occupations inherently carry hazards to visual efficiency insofar as both the quality and the quantity of radiant ener- gy are concerned. The solutions to many of these problems are in their incipient stages. It would seem logical to pre- sume that closer co-operation of physician, optometrist, physicist, and engineer might lead to further light on this subject.

WITH THE AID OF GEOMETRY

Problem:—If you have a sheet of paper, a slow pup equals a lazy dog.

Given:—A sheet of paper.

To prove:—A slow pup equals a lazy dog.

Proof:—A sheet of paper equals an ink lined plane.

An inclined plane equals a slope up.

A slow pup equals a lazy dog.

AFTER EXAMS

Green:—Because you didn't pass don't get discouraged too easily. Set your goal and drive for it. Refuse to be stop- ped or turned aside by any thing.

Berman.—Yeah, but who wants to be a truck driver.

No doubt the flapper's heart beats are often mistaken

THE PROFESSIONAL ATTITUDE

By Vincent D. Reardon '15 A. O. Co.

To me, the most important thing for a young optometrist to remember is that the cultivation of a professional attitude will contribute largely to his success. However, don't confuse "professional attitude" as having anything to do with acting or posing.

The true professional man gives an unmistakable impression that his sole purpose is to give every patient the very best according to his knowledge. He gives that impression because that honestly is his purpose. He realizes that his studies have only begun when he receives his degree, and that if he is always to give his patients the best possible service, he must be continually studying, and adding to his knowledge.

He shows, too, that he expects his patients to want the finest they can afford to have. In your profession, neither you nor the patient should feel satisfied unless he is receiving the finest his money can buy—particularly as to lenses.

It is worth while to explain that there is a difference in lenses for glasses, and that, if nothing else, you want your patients to have the finest lenses they can possibly afford. Some of your patients will notice the difference between their old lenses and the new, and such things will help considerably in building a reputation and a stable practice.

Also, identify yourself with the several associations, national, state, and local, to which you are eligible for membership. Take advantage of the lectures and clinics, and try out for yourself the new and better methods which are recommended to you by reputable colleagues and study groups.

It is a part of the professional attitude, also, to use only the finest and most precise diagnostic instruments, instruments upon which you may rely, and which will not give false findings; both you and your patients are entitled to the advantages and the protection of good instrumentation.

In short, make up your mind to give every patient the benefit of all your knowledge and skill, know that you must continually study and add to your knowledge, and in every other way regard service to the patient as your high purpose. Following that course you will have many an opportunity to give people greater eye comfort than they have ever enjoyed before, and that fact, together with the way you regard your practice, will serve to establish your reputation in the community and in the profession.

THE PSYCHO-PHYSICAL ASPECT OF FUSION

Thomas Harrison Eames
Harvard University

Although fusion development is regarded as an optometrical problem it is essentially a process of learning. All learning occurs as the result of certain modifications of the structures of the cerebral cortex. Certain stimuli are encountered which cause nerve impulses to flow from one neuron to another, more specifically, from the terminal arborizations of one to the dendrites of another at places of contact called synapses. It is commonly believed that the synapse offers resistance to the neural impulses and that learning involves the breaking down of these resistances. The important point is that the synapses are selective in that they direct impulses over certain specific neurons instead of sending them out indiscriminately. There are many alternate pathways at a synapse and learning consists of influencing the pathway taken by the neural impulse. Each time an impulse is made to pass over a given pathway as a result of stimulation, certain neurobiotactic changes occur, the result of which is to lower the synaptic resistance for that particular pathway, and when stimulation occurs again, the neural impulse, following the line of least resistance, takes that course.

In fusion, training certain charts are presented to the patient. They are constructed so as to stimulate the desire for singleness, as in the case of divided words and pictures. The cards provide the stimuli and the optometrist, by manipulating his instruments, assists the patient to obtain single binocular vision and then withdraws his assistance. He may insert antagonistic prisms in an attempt to call forth a greater response on the part of the patient. Each time fusion is gained, minute neural changes occur in the synaptic connections and the resistance is proportionately lessened. As the resistance diminishes the response grows in strength and a greater degree of antagonistic prism power can be overcome. After a certain period in each treatment improvement [illegible] occuring at the synapses as a result of neural activity, temporarily raising the resistance. As in other forms of learning there is an optimum practice period and the writer is collecting data with the intention of establishing what the length of this period should be for the average case. The optimum number of treatments per week is also being considered. Present indications suggest a period of from twenty to thirty minutes duration twice each week, but no definite statement can be made until the completion of the study.

The difference between the number of treatments required by different patients with approximately the same degree of defect was once regarded as being dependent on age, but this idea has given place to the impression that attention and individual differences are of greater importance. If a person is not attending he can not be taught and if his response mechanism is not active he can not be trained, hence attention is of great importance. The listless man of twenty requires more treatments than the alert man of fifty, regardless of the amplitude of accomodation of either. Individual differences in mental adaptability, as in other human traits, forms a normal distribution and most of us cluster about the median or mid-point. For such people the number of treatments required to overcome a given defect does not vary very much, but there is a great difference between the number required by a person who falls at one end of the distribution and the number required by one at the opposite end. Both vary from the normal, one requiring more treatments, the other less.

The notion that accommodation is all important in fusion development is in some way connected with the idea that people past middle age are too old to learn. This seems absurd when it is remembered that presbyopic pa[illegible] progress about as rapidly as non-presbyopes. The pres[illegible] of so many gray heads in graduate classes argues fo[illegible] ability of the older person to undergo cerebral modifica[illegible]

SUSPEN-OPSIA

By Dr. F. McFadden.

[I]s not an optical or refractive error of Sight but rather [a] visual error, a difficulty of perception of the retinal imag[er]y after this has passed beyond the picture stage and into [th]e domain of conduction of the nervous impulse. Seeing, [or] the act of "sight" first requires a retinal picture, but also [th]at the retinal and neural elements shall transmit their mes[sa]ges to the lobes and convolutions of the brain where they [m]ay receive appropriate attention. It is vital to Optometry [bo]th that we should treat all refractive errors in a manner [w]hich will place upon the retina a perfect image, and that [w]e take such further steps as are necessary for the delivery [of] two usable images.

Many people have difficulty of vision when their refract[iv]e errors, or purely optical defects, are of minor importance. [Th]ere is therefore a vast difference between the usual con[ce]ption of binocularity and the actual reception of two si[m]ultaneous visual impulses which constitute bin-OP-traley. [Fa]ilure of simultaneous perception, where only one image [at] a time arrives, is mon-OP-traley and the person who has [th]is difficulty is no better off, during the suspension of the [im]pulse than a one-eyed person. Moreover he is often worse [of]f, because **he does not know that he does not "see"** cor[re]ctly.

In making the so-called muscle test for binocular poise [th]e patient often fails to see the maddox streak, or the [im]ages from the double prism, or speaks of its vanishing [a]nd recurring. To make the test for Suspenopsia the more [co]nvenient, and accurate method is to cause three to five [pr]optres of vertical diplopia using a fixation object at the [te]st chart. Such an object should be 3 to 6 inches in diam[et]er, white, well illuminated, preferably opalescent glass be[fo]re a 25 watt groundglass globe. Place 3 to 6 D prism so [a]s to cause vertical diplopia with the images slightly sepa[r]ated, requiring the consultant to observe if both discs are [c]ontinuously visible. If either image vanishes, slip a red [g]lass into the phoropter cell, asking the consultant to fix his [a]ttention rigidly upon the white spot, attend the white spot [in]tently, never lose sight of the white spot, keeping his whole [m]ind upon the white. While thus heeding the **white** spot [w]e ask him if the **red** spot ever vanishes. Keep attention [t]hus for a full minute, and should the red vanish he is to use [o]nly one syllable; "gone"; and when the red again becomes [v]isible he is only to use one syllable! "back", in order that [w]e may correctly time the **off** intervals and **on** intervals with [t]he seconds hand of our watch. More words lead to con[f]usion and inaccuracy. A penny tin snapper from a toy[s]hop is better than words, the hand being quicker than [l]anguage.

Time first one eye then the other, for at least a full min[u]te each, writing the results after each eye, from memory, [u]sing plus sign for **on** periods, minus sign for **off** periods, [w]ith approximate seconds following the signs. When there [i]s marked Suspenopsia of either eye take five-minute tests, [h]aving the attendant write the figures and signs while you [d]ictate from the watch-dial. It makes no difference whether [w]e use a red, green, or any other color filter, the results are [t]he same, and any filter is used only that we may clearly dis[t]inguish which eye is under test, as well as convince the [c]onsultant of his intermittency.

I have an instrument which any mechanic can construct, whereby the consultant pulls a string and thereby writes a graph upon a revolving drum, producing an autographic record timed to the correct on and off periods. This is shown in Am. Journal Physiologal Optics, October, 1926.

In many suspenopes the red disk of light does not vanish but grows small, then large, waxes and wanes in size. In half of the red disk will vanish, leaving only the lower, or vice-versa. Or sometimes the right half will vanish, or the left, to return again after a time. These hemi-suspenopes I retest with a long light field in order to learn how much supra or sub-field they lose vision over, or how much temporal or nasal field vision vanishes. Cases of this type often have waxing-waning visual field perception over only half the field, without full loss of perception. Physical and mental fatigue influence such cases materially, but they occur among those whom we would least suspect.

Place a red glass before one eye, green before the other, without the diplopia-producing prism, fix upon the white light, and suspenopes will see it as red, as green, then as white, in varying periods which correspond with their binoptral incompetency. With the two color filters and vertical diplopia they will say that the green goes and comes, the red goes and comes, and that sometimes the periods overlap. I have indeed had a few very marked cases in which the consultant neither saw red nor green nor white either for appreciable periods of time. These people had previously complained that they had blind spells when they did not see at all. These moments may be but for a second or few seconds duration, but they are indeed binopraly blind, not ocularly blind.

Place a maddox double prism, base horizontal, and red filter before one eye, fixing both eyes upon the spot of light, attending forcibly the white light. Some suspenopes will lose the upper while retaining the lower red image, or vice-versa. Place the prism obliquely and study the lateral fields. A line-of-light fixator a foot or two in length, by 2" or 3" wide, reveals peculiarities of field suspension which are often a surprise.

Place a maddox rod before each eye, also green and red filters as before, crossing the bars of light. In suspenopes one bar or the other will vanish for periods which usually correspond to such previously indicated periods. In some cases the upper end of one bar and lower of the other temporarily vanish. In any of these cases there is no possible doubt of the retinal image existing, nor of ocular receptivity, but the nervous impulse fails to register on the appropriate convolutions of the brain. Somewhere these lapses occur, either as a whole retinal field, or in some part of it. Or the impulse having come through will wane to a pale hue, then wax normal. It is strictly the province of Optometry to study these phenomena and return the consultants to normal conditions by means of our instruments and skill.

I have spoken of the tests made with distance fixation. We may make them thru the steroscope, the campimeter, kratometer, or phoropter, but any trial set is perfectly useless in the work. A wide variety of fixation cards are available, but the F L card serves as well as any to illustrate nearpoint tests for Suspenopsia. When they do not fuse into an E we have evidence that the F or L has vanished, but in those numerous cases where only an upper or lower half suspends, or the vertical divisions take place, either this card or any other will fool the consultant and optometrist very badly. There is nothing which can be done with the first three instruments which cannot be accomplished far better with the phoropter, since it gives far greater latitude for the various tests, and much greater accuracy is attainable.

All refractive errors should first be corrected before making the full test for suspenopsia. We often obtain positive evidence of suspension while making the tests for ocular poise, since the maddox bar or image vanishes or becomes difficult to see.

apex angle distance a mental calculation of great accuracy derived from experience.

Suspenopes lose one observation station without ever knowing it, becoming thereby one-eyed because they are momentarily monoptral. Such periods vary from a fraction of a second to one second, two, five, ten, twenty. A one eyed motor driver is a menace, but many people are monoptral during a time when a 35 mile per hour car travels from ten to one hundred or more feet. Judgement of distance by a suspenope is hazardous in the extreme, oftener than we suspect, it is the cause of fatal accidents. Some industrial jobs are difficult, many are dangerous, to suspenopes. In any case the work is extremely difficult, and such people are likely to turn out work which fails inspection, or is a total loss.

Some investigators of Suspenopsia think that exophores are suspenopsic, and that muscular treatments will correct the difficulty. This may be true in certain instances, but unfortunately the subject is far deeper. Some suspenopes have a persistent lapse of one eye, hence prisms are unavailing. With such cases we have found that the lapsing eye is sensitive to objects which move, which throw an image of motion across the retina, which stimulate successive rod-areas by a stroking process. I can best illustrate this by one whose lapse is persistent in one eye. Place two maddox bars of light across his retinae, one vertical, the other horizontal, or in any oblique manner. Wig wag the bar before the suspending eye, and while this bar is in actual motion the eye will perceive, but vision lapses the instant motion ceases. I have reclaimed vision to several permanently suspended eyes by treating these with a moving object until the ancient primitive visual impulse to observe a moving object could be retained in the mental processes long enough to be tuned in by the more delicate perception of still objects and form-perception. Constant treatment by moving images across the retina will often reclaim the faculty which has otherwise almost wholly ceased. Eyes having long intervals of suspension eventually become blind, not due to ocular organic fault, but to higher errors within our province to correct in the visual tract and sensorium. Macular vision is a distinct entity which may exist or cease without reference to peripheral vision. Macular vision is a recent acquisition, as are also convergency, and simultaneous vision. Most mammals and birds cannot observe one object with both eyes simultaneously, but are monoptral, altho binocular. Vision must alternate, and a suspenope among Mankind is one who has lapses back into the primitive kind of sight. The primitive eyes of domestic animals see things readily while they move but strangely lack perception of still objects. By resorting to this faculty we can stimulate perceptivity by using simultaneous moving objects before both eyes. Prisms are often necessary in order to forcibly superpose images and thereby compel coordinate activity of the visual impulses. The subject is long but the way lays perfectly clear before us. We must lay aside some old dogmas and open our minds to fields of research.

HISTORY OF PI OMICRON SIGMA FRATERNITY

The Pi Omicron Sigma Fraternity was organized in the fall of 1913 by Carl Schroeder of the Senior night school class. Mr. Reardon of the American Optical Co. was also a member of this class and was an interested organizer of the fraternity. The first officers were: Benjamin Rozenkranz, President; Frank W. Sewall, Vice-President; and Carl Schroeder, Secretary Treasurer. There were 18 students, exclusive of officers, who signed their names as charter members.

The constitution and by-laws drawn up by these members were very good but would have been more effective if they had been followed more closely. The constitution was changed from time to time to suit the likes and dislikes of the various classes. The amount of dues was also changed from time to time and varied from 10 cents a month up to $10.00 for a life membership. This latter, however, was never put into effect. It was also voted at one time to invite the members of the night classes to join. This seems quite absurd since the Fraternity was organized by a night class.

Enthusiasm was high from the start until 1914 when the advent of the war cut down the number of students considerably and meetings were held at widely-spread dates until 1923. Since that time, due to the interest of certain individuals, the Fraternity held its own, with most interesting educational programs. There were many social affairs and a number of very successful dances and dinners were given. It is now under very capable leadership and seems to have new life instilled in it. The future of the Fraternity, either as a local one or a national, is very bright and it is bound to grow and help future students at M. S. O.

—Dean Hilliard, '31, P. O. S.

MIXED

Customer—I want a pair of spee-rimmed hornicles—I mean sporn-himmed rectacles—Pshaw! I mean hick-remmed

FRATERNITY NEWS

On the evening of April 11th, the Pi Omicron Sigma Fraternity held a regular meeting and smoker. The educational part of the program consisted of the showing of the film "Glass Magic" produced by the Bausch and Lomb Optical Co. The film was furnished thru the courtesy of the G. M. Smith Optical Co. of Boston, local distributors of B. & L. Products. Fraternity members present gained some valuable information on the interesting subject of glassmaking.

A short business meeting was held to fill the vacancy caused by the resignation of the president, Ray Whitcomb. Melvin Dunbar, '31 was elected to hold office for the remainder of the school term. The remainder of the evening was passed with various entertainment and a light lunch was served, after which smokes were provided for all.

A fraternity seal and certificate are being prepared and each member is soon to receive a certificate of membership.

Election of offices for the next school year took place April 24th. The officers elected were: President—Melvin B. Dunbar, Cambridge, Mass.; Vice-President—Deane A. Hilliard, Claremont, N. H.; Secretary—Albert Trombley, Burlington, Vt.; Treasurer—Arnold E. Wordell, Taunton, Mass.; Executive Committee—Jack Weinraub, Brooklyn, N. Y.; Master-at-arms—Arthur L. Oxton, Camden, Me.; Initiation Committee—Albert Trombley, R. Carlton McNamara, John F. Brennan.

A PROBLEM

How can a fellow study
  When the sun is shining bright?
How can a fellow study
  When your team is in the fight?
When all the out-doors is calling
  And shouting, "It is May."
How can a fellow study?
  But, gosh! the "Finals" are in sight

THE BETTER VISION INSTITUTE

By Ernest H. Gaunt

hat is sincerely believed to be the first step in a new f service and prosperity is contained in the announce- of the establishment and launching of the Better Vision ute.

n months in the making, combining the careful and hought out plans of representatives of the entire optical try, the Better Vision Institute represents a drive for aising of optical prosperity, the increasing of popular c interest and the establishing of members of the Insti- on a sounder economic basis than ever before. The ex- ely moderate cost of associate membership has been possible through the coordination of the activities of e manufacturers and distributors.

he crying need in the optical field today is a sound in- e in volume of business and an increase in profits. In- lual practitioners here and there are accomplishing the but the general level in the field has not risen as it ld, so that the opportunity and inducement for further lopment are greatly needed. Retailers in other lines all the country have banded together, made group studies decreased the hazards of their business through the pub- ion of facts based on widespread research. In the op- field such help has been lacking.

t has been seen for a long time that there was a great for a central clearing house of information and ideas by drawing together retailers, wholesalers and manufac- rs to study the problem, the solution offered was the er Vision Institute, which will not duplicate the effort ther optical organizations, will not concern itself with ers of professional procedure or technique, but which focus its effort in economic lines to strengthen the busi- practices of the members of the profession.

)bjects of the Better Vision Institute are seven in num- every one of which will call for a rousing "amen" from practitioners, themselves. These objects are as follows:

1. **To inspire, foster and encourage higher ideals in the optical industry. To promote a fuller recognition and better understanding of its needs.**
2. **To develop practical means of capitalizing the sales opportunities that exist today in America among the wearers and potential wearers of glasses.**
3. **To create and provide practical methods of increasing the demands for more and better glasses.**
4. **To develop and provide practical methods for measuring the success of optical practices.**
5. **To assist local, territorial and national projects and activities that, after careful analysis, are recognized as constructive.**
6. **To study ways and means of improving economic conditions in the optical industry.**
7. **To function in any and every way that will tend to promote the progress of the optical business.**

"The plan of the Better Vision Institute," said President Edwin D. Nerney, "is simple in the extreme. There are three big factors, all necessary to optical welfare—the retailer, the distributor and the manufacturer, and the Better Vision Institute is organized in the interest of all of these.

"The manufacturers will supply research information on production, accounting, advertising, selling and administrative matters.

"The distributors will supply such factors as sales stock control, facts on turnover, accounting, and other territorial data so necessary to a complete picture.

"The retailers themselves will represent the sound foundation of actual facts with respect to results of advertising, sales ethics, accounting and so forth.

"All of these will coordinate so that the Institute itself can organize, sift, study, test and publish sound procedure and suggestions. We are starting with a splendid membership on the manufacturer and distributor side, and are now making it possible for the retailers to participate in associate membership at the small cost of $5 a year, which will entitle these members to all of the information assembled by the Institute."

Among the very first benefits which will be derived by the practitioners from membership in the Better Vision Institute will be the use of **Occupational Analysis.** This is the first offering. Occupational Analysis is already successful. Those who have adopted its suggestions estimate it to be worth many times the cost of several years' membership. As soon as the practitioner enrolls as a member of the Better Vision Institute, he will receive the clothbound Manual giving in detail the method and procedure of Occupational Analysis and supplying an initial quantity of Occupational Analysis blanks.

Before this new idea in the optical field was presented through the Better Vision Institute, it was thoroughly tested in actual practice in many sections of the country and represents an instant and immediate success—so great, in fact, that the officers of the Better Vision Institute are reluctant to publish the figures because they may seem to be exaggerated.

One great advantage of membership in the Better Vision Institute at this time lies in the fact that through the simultaneous dissemination of tested information, such as Occupational Analysis, the public will find that not merely isolated practitioners will be offering the service, but that all the members of the Institute will be presenting a united front to the public, thus training the public to new ways of looking at the optical industry far more quickly than could be accomplished by any other method.

OUR sincerest congratulations and best wishes to the graduating members of the class of 1930, Massachusetts School of Optometry.

CHAFFIN OPTICAL COMPANY
BOSTON

A BRIEF HISTORY OF MODERN OPTOMETRY

by Jack Weinraub, '31

In preparing this subject the writer has attempted to furnish the student, the practitioner, and the reader with a brief and concise account of the history of modern Optometry, a profession which has developed into the dignity of an applied science. The practice and knowledge of this profession have, especially within the last 50 years, come to have an important share in shaping the conditions and directing the activities of human life.

All history is a record of progress. No country, no race, no type of civilization and no type of science moves steadily forward or steadily backward. All make progress at some periods, stagnate at others, and at certain times move backward. This is true also of individuals and of species of plants, animals and various sciences. It is one of the universal laws of nature.

The science and profession of Optometry, however, can claim some exception to this general rule, insofar as it has made consistent improvement and progress within a stated period of time.

The history of optometry can be traced to the earliest period of civilization and into every part of the world. Thinkers of every race have contributed to its evolution until it has reached the present state of efficiency. The word "Optometry" is derived from the Greek word "Optos" meaning eye and "metros" meaning measure. Optometry is defined in various ways as the science of measuring the accomodative, refractive and muscular powers of the eye without the use of drugs, and the adaptation of lenses and prisms for the aid of human vision.

The modern history of Optical science at least so far as the optometrist is concerned, may be said to have its inception with the discovery of the law of refraction, "The ratio of the sines of the angle of incidence and the angle of refraction is constant", by W. Snell, a Dutch astronomer in 1621. In 1676, Ole Roemer, a Danish astronomer, deduced the finite velocity of light from a comparison between observed and computed times of the eclipse of the moons of Jupiter. This velocity he calculated as roughly 186,000 miles per second. In 1678 Christian Huygens, a Dutch physicist, enunciated his famous wave theory of light, upon which all our modern science and art of refraction are based. It is referred to as Huygens "undulatory theory" of light. In 1704. Newton, an English mathematician announced his "corpuscular theory" of light claiming that luminous bodies emitted particles of matter which passed freely through transparent substances and whose impact on the retina produced sensation of light.

In the early part of the nineteenth century Newton's theory of light met serious opposition. Its chief opponents were Thomas Young, Fresnel, Neumann and Green, but it was J. B. L. Foucault who finally overthrew the Newtonian doctrine and established Huygen's wave theory by showing that the velocity of light was less in water than in air. In the meantime, many optical instruments were invented and manufactured. Huygens improved the grinding of spherical lens surface.

In 1757 John Dolland, an English optician, first made an achromatic lens by a combination of glass and water media and later by combining different densities and qualities of glass. In 1784 Benjamin Franklin invented bifocal lenses. In 1837 Schnaitman was instrumental in producing a one piece lens, in which the distance and the reading portions of the lens were ground upon one piece of glass. In 1844 Karl F. Gauss, a German astronomer, determined focal points and image representations of lenses and Listing, in 1845, demonstrated Nodal points.

In 1855 H. L. Helmholtz, a German scientist, invented the [illegible] for much work in the field of physiological optics, demonstrating the function and theory of accomodation which is taught to the present day. He also devised the principle of the Opthalmometer for measuring the curvature of the Cornea.

In 1871 Cuignet invented the retinoscope. The first practicable instrument, however, was built in 1822 by Javal, which is the model of our modern instruments. In 1912 Sir William Crookes invented and constructed a lens of such construction as to prevent the passage of ultra-violet and other rays.

Helmholtz, Young, and Donders are the outstanding characters in the development of the clinical and physiological phase of optics and I will mention briefly several of their contributions to optometry.

Helmholtz has already been referred to as an authority on physiological optics and the inventor of the opthalmoscope.

Thomas Young, an English physicist, explained the manner in which the eye accomodates itself to vision at different distances by changing the curvature of the crystalline lens. Young and Helmholtz jointly presented the theory of color perception. He held that there were only three primaries, red, green and violet and that all other colors were due to the mingling of these in different proportions. He also asserted that there were three sets of nerve endings in the retina which received these sensations and conveyed them by the optic nerve to the brain. This view received considerable support when the pathological condition known as color blindness came to be investigated. Young also discovered the phenomenon of the interference of light waves. If a ray of light of uniform wave length be allowed to enter a dark room through two minute apertures placed close together, the two rays will interfere with each other..

Franz C. Donders, a Dutch Physician, who is known for his important work in ocular refraction, especially in regard to the physiology of accomodation and Presbyopia, advanced some important laws governing same. To Donders we owe most of our modern knowledge of the subject. He is regarded as the father of modern refraction.

About 1895 Dr. A. Jay Cross, of New York City, devised and demonstrated Dynamic Skiametry, for measuring the refraction of the eye by means of the retinoscope with the accomodation and convergence in force. Dr. Cross based his theory upon two physiologic principles; first, that a muscle in action will more readily accept assistance than a muscle at rest, and second, that convergence and accomodation bear a definite relation to each other.

The modern aspect of Optometry originated in the desire to distinguish between refracting optometrists and dispensing opticians. With this end in view they organized themselves into a separate body, adopted the name of Optometrists in 1904, and soon secured the recognition and statutory regulation. The first Optometry law was passed in Minnesota in 1901. Since that time forty-seven other states and all the possessions of U. S. have enacted similar laws, as have many Canadian provinces. License to practice Optometry is granted by State boards of examiners. The requirements are rigid and vary in different states. New York State board and most of the other states now require that an applicant shall have had a preliminary high school training of not less than four years and shall give evidence of graduation from a recognized school of Optometry.

The first university to recognize the merits of Optometry and its future, as a profession was established at Columbia University through the untiring effort of Dr. C. Prentice in 1910. Other universities teaching Optometry are University of Rochester, Ohio State University, University of California, University of Havana and University of Illi-

e institutions confer the degree of Bachelor of Science. r Colleges and Schools are Los Angeles Schools of metry, affiliated with the University of Southern Cal-nia in 1929. Northern Illinois College of Optometry, nsylvania State College of Optometry, North Pacific ege of Optometry and the Mass. School of Optometry. Canada we have the Royal College of Science, College Optometry of Quebec and College of Optometry of ada.

Under the stimulus of legislation, optometry as a science a profession has rapidly developed, improved instru-ts for the examination of the eye, as well as many ad-ges in the adaptation of lenses and prisms to correct al errors and muscular defects have been introduced. result the following are some of the methods the modern ometrist employs in making visual tests: test charts having graduated letters or symbols, the trial case of assorted lenses, the Kratometer, Keratometer opthalmoscope, retinoscope, phorometer, perimeter, compimeter, and myoculator.

Students are now thoroughly grounded in the science of Optics as a preliminary to the examination of the eye. They are taught all over the processes connected with the manufacture and grinding of lenses. The students also receive a perfect and thorough training in ocular refraction and learn to distinguish between refractive errors and pathological conditions of ocular tissues.

The comparatively new profession of Optometry has reached a very high standing among the older profession and still higher in the future with further co-operation by the practitioners.

AS I SEE THEM.

By Harry Perkis, '28
Brooklyn, N. Y.

'Round about 1927-28 when the good old "Riding Acad-y" of M. S. O. was in full bloom, the famous Fred Carey ld predict for me an "Eye Emporium" on Pitkin Avenue h a shingle—"Harry's Eye Shop. Myopes Upstairs, Pres-pic Bargain Basement Downstairs."

Part of it has come true—Pitkin Avenue. As for the er parts, such very amusing and interesting incidents pen in my daily practice, that it more than makes up. w to give just a few examples.

I examined an elderly gentleman some months ago and led a minus .50 sphere to his old correction. A week er, he came rushing in to tell me that since he had his sses changed, his HEARING had been much impaired. owing that it really was a simple case of Psychology, gave his glasses a good bath in "Lenzo" and the next ek he reported that his hearing was fine again.

A lady walked in one day to have a broken temple re-aced. I didn't happen to have the temple in stock, and d her that it would be ready the next day. She replied that "could not get along without her glasses for a minute." y interest was aroused and on neutralizing her correction. ound that they were plus .25 spheres (white)! Psychology! and how!

The other day, I had the extreme honor of adjusting finger-piece mtg. for a lady (aged 64) who has worn the ME lenses in the SAME mounting for the last sixteen ars (O. U. plus 2.25 spheres) and when I so bravely sug-sted a possible change of lenses, she just wouldn't hear it. I'd like to have that mounting for my antique col-tion.

On taking the near P. D., I asked a patient to fix at my rhead. She looked searchingly for a moment as if to say do wonder what he wants me to look at?" And then she claimed uneasily—Pimples! Well!!"

P. S.—I'd like to squeeze in a few words into this space d say that I'd like to hear from my fellow graduates '28.

RETROSPECT

In the last stages of our school life at M. S. O., we can ok back over the busiest two years of our lives. Two years ent in the study of new subjects, in the making of new iends, in meeting strange and varied cases. Two years ent under the tutelage of the best men Optometry has er produced and receiving from them our first notions the birth of the profession and of its future. Two years which to prepare for a life's work, to make new associa-ons, to engage in the varied activities of school life. Years cked with action and events: yet withal so busy, short ears in which to have formed the lasting impressions that ill influence us so greatly in the future.

A BIBLICAL BALL-GAME

Eve stole first and Adam stole second,
St. Peter umpired the game.
Rebecca went to the well with a pitcher,
Ruth in the fields won fame.
Goliath got struck out by David.
Abel got a base hit of Cain.
And the Prodigal Son made one home run,
Brother Noah issued checks for rain.

PREPARED

Al Hutchinson has heard that an expert gold digger hardly ever fails to make the grayed.

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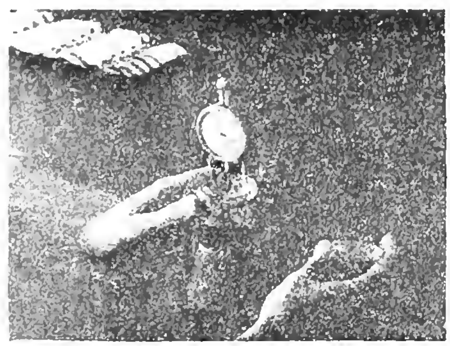

In finishing Tillyer lenses, we use a new comparative measurement of curves by master lenses—a very rigid test of final accuracy. It is only one of the new tests given to Tillyer lenses, and it is typical of the precision of Wilson and Halford work. Send us your next prescription.

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WE RECOMMEND TILLYER LENSES

PROBLEMS IN OPTOMETRY

By Dr. Wm. Smith

very once in a while we read in our professional pub-ons statements issued by men in the medical profession ially those connected with the study and practice of the egarding relationship between our profession and theirs. of them had such significance as the statement issued r. Walter B. Lancaster of Boston at the Ophthalmologic on of the American Medical Association at the conven-in Minneapolis recently. The importance attached to Lancaster's statement is of great significance because Lancaster happens to be the chairman of that section in A. M. A. We are as yet not in a position to give much ence or much weight to the utterances of the Doctor, not his address lacks the weight of the influence in back of ut because it was made with a dissenting minority op-ng it. Dr. Lancaster, from what we understand, has ex-sed his views and those of many others, but there are many in the profession who cling to the old, fanatical s that medicine is invincible and nothing can take its e, and that they would rather have a half-baked ignorant physician than yield to an up-to-date, highly-scientifically ned optometrist.

am here reminded of a story. Minneapolis and St. Paul. nesota are two rival cities and there has always been a fe for one to out-do the other, and if one does something other one is ready to follow it and even out-do it. It so pened that the people in St. Paul decided that they would to teach the Bible in their public schools, and it also pened that the people in Minneapolis got wind of it and ided to get ahead of St. Paul in this measure. It required unanimous consent of the school committee to adopt such easure. One of the members of the school committee was Ir. Johnson, an uneducated Swede, who came to this coun-, began working in a brewery, and finally after years of or, opened up one himself and prospered. Well, this Mr. nson was a member of the school committee. All the mbers of the committee came to him to ask his consent so t they could get ahead of St. Paul in the measure that I t mentioned. Mr. Johnson greeted the committee cordial-and after hearing what their proposition was, said to m, "Gentlemen, I have heard of the book of which you ak, but I have never read it. If you will give me until esday to read the book, I will give you my opinion then." they brought him the Bible and Tuesday they came for reply. He greeted them again cordially and said, "Gen-men, I read the book. It is a mighty fine book, to be exact out it, but if you ask me to teach it in the public schools Minneapolis, I will say 'No', because there is a lot said ere about St. Paul, but there is not a word in it about Min-apolis."

This is the opinion that some of our competitors, if you ant to call them such, in the medical field, hold towards tometry. It was for this reason, too, that Dr. Lancaster et with opposition on the part of those medics when he me out with his opinion regarding optometry. Still, Dr. ancaster's prediction will come about. Optometry has been aking too great a stride towards professionalism in recent ars to remain otherwise. One may go to sleep and like ip Van Winkle wake up to find his musket rusty and his othes worn with age. Optometry is going through a tre-endous metamorphosis. There is no equal to it in the his-ry of professions. One in practice can appreciate it much tter than the student to whom knowledge is given digested.

There is one way that you, as optometry students, will e able to face professional future and that is by appearing rofessional. The public no longer is looking for the semi-rofessional man. This is an age of specialties. A hardware tore or furniture or even a jewelry store, let alone a depart-ent store, is no place for a professional specialist. Those n the professions, especially in the optometric profession, are realizing it more and more every day. There has never been a greater upward trend in optometry than there has been lately. You will find very few men in this city located downstairs. In the other cities where I happened to visit, optometrists, although still located in stores, are gradually moving upstairs and I can wager that within the next five years, it will be a rarity to find an optometrist in a store. These are things that one must remember. The public comes to you not because you are conveniently located for them and not because your prices are cheap, but because they have the confidence in your ability. That is something that you and you alone must create. Your school knowledge is of no value if you do not try to incorporate into it that rare human element, an element which some of us unfortunately do not exercise. I am referring to common sense. You are taught at school today many theories. You will find that as you go into practice, those theories will be all right when cases pertaining to them come your way, but when you happen to get a case which is out of the ordinary your theoretical knowledge, unless it is re-enforced and supplemented with some common sense, will be utterly valueless.

Your relationship to one another should be of the most cordial nature. Do not look upon each other as competitors, but as fellow practitioners with whom you have to work in unison to attain that goal for which we are all striving.

Above all, cultivate professional connections. By this I mean join all the associations which are created for your professional uplift. It is the duty of every optometrist to be a member of the State Association, and not only a member on the books, but be responsible and helpful in carrying out the policy of your association. In numbers there is strength.

It may surprise you to learn that the time to begin studying is when you hang out your shingle and examine a few patients either with good results or with bad. In either case you will be somewhat shaky as to the actual results of your examination. Common sense will then teach you that you will have to study and study hard to prove your ability. You will find that some knowledge along medical lines will be of much use to you and your practice. I could cite you several cases in which the nose, teeth, low debility and other physical influencing causes were responsible for low grade vision subsequently resulting in what the patient thought was an eye condition. Referring them to the proper source for treatment will enhance your professional status and give you a superior placing in your community.

Popularize your profession. By this I mean do not sugar-coat it with any synonymous name. You are an optometrist. Let the world know about it. But also tell it what an optometrist is and what his work is.

It has been my hobby since my inception into the field of optometry, to write and talk optometric infirmaries. No one, besides, the recent graduate or an optometric undergraduate, can appreciate the need of such an institution, so much. Again, optometry would benefit in many ways by having such an institution or such institutions. Primarily, those without connections would be able to obtain practical experience the same way as do physicians or medical undergraduates. In the second place, the field for optometric research is now very much in the hands of optometrists. Medical investigators have contributed very little to the field of physiologic optics in recent years. Optometrists have been prominent in these researches. Infirmaries would give them that desired material with which to work.

And last, but not least, let me impress upon you that the days of free work is way past. "Examinations Free" is nothing more than a sucker's bait. An ethical man does not resort to such tactics. Likewise, a sensible businessman knows that if he gets anything for nothing, it isn't worth any more. Your fees should include an examination fee and

it should be so specified. People are willing to pay for it because in that way they feel that they are getting what is due them.

These, my friends, are our problems. You, as students in optometry are the ones from whom salvation must come. The old timers have either changed with the time or are passing out because progress is the greatest enemy that they fear. To you will fall the task to create better relationship and understanding between Optometry and Medicine.

DR. PAUL CAREY ELECTED.

At a meeting held at the school April 30th, the following officers of the Alumni Association were elected:

President, Dr. Paul Carey, Biddeford, Me.; Vice-President, Dr. D. B. Hanson, Roxbury, Mass; Sec.-Treasurer, Dr. B. Higgs, Boston, Mass. Membership committee appoined consisted of Dr. James Collins, Chairman, V. Reardon, D. B. Hanson, R. Pratt. An informal method of introduction was in order, each member arising and giving his name and year of graduation. The instructive part of the meeting followed, with a demonstration of the use of contact lenses in a case of conical cornea. The patient demonstrated his method of instilling the saline solution while fitting the contact lenses to the sclera.

It was decided that dues of one dollar are to be paid for a term up to January first. A meeting will be held during convention week and Dr. Hanson and Dr. Thomas are to be at the registration desk at the Hotel Statler and will inform those registering of the coming meeting.

There were forty present and great interest was shown in regards the organization, the purpose of which is to be of moral and financial assistance to the school.

A BIT OF PHILOSOPHY

Physicists picture to us a universal ether filling all space, and the appearance in it of atoms. The chemist tells us how these atoms unite. Astronomers teach us how suns are formed, stupendous in size and in a state of intense activity. Biologists explain to us the evolutionary process of plants and animals, until in man himself we reach the climax, the most complex and mysterious organism. The story of man is indeed a marvelous one, if only we take the pains to read it.

But does this story end with him? This question may be answered pro and con. Some would have us believe that when this thinking machine is destroyed, the units of which it is composed follow down the pathway they have climbed and resolve themselves into the primeval cells from which they arose. There are some who are loath to think that a being evolved with so much labor should perish and leave nothing behind it but a memory. Both views have supporters. Which is nearer the truth is a question that has puzzled the wise men of the past as it will doubtless puzzle generations of wise men of the future.

It remains an individual problem and can be solved only by individuals.

Jack Weinraub, '31.

Forgues, the schoolboy with the school girl complexion.

Prescription Work a Specialty

SUFFOLK OPTICAL CO.

Prescription Opticians

333 Washington St. Boston, Mass.

EVOLUTION: AT THE MIND'S CINEMA

1

I turn the handle and the story starts;
Reel after reel is all astronomy,
Till life, enkindled in a niche of sky,
Leaps on the stage to play a million parts.

2

Life leaves the slime and thro' all ocean darts;
She conquers earth, and raises wings to fly;
Then spirit blooms, and learns how not to die—
Nesting beyond the grave on other's hearts.

3

I turn the handle; other men like me
Have made the film; and now I sit and look
In quiet, privileged like divinity
To read the roaring world as in a book.

If this thy past, where shall thy future climb,
O Spirit, built of elements and time.

—J. S. Huxley.

Little Barbara's eyesight was inclined to be weak, so her mother took her to a doctor, who, after an examination, announced that she would have to wear glasses for a time.

Some weeks later the doctor asked after his little patient.

"O, doctor," said the mother, tearfully, "I can't get her to wear those glasses during the day, but"—she brightened up a little—"when she's asleep I creep upstairs and slip them on!"—

Jack Weinraub says, "Do right and fear no man. Do not write and fear no woman.

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